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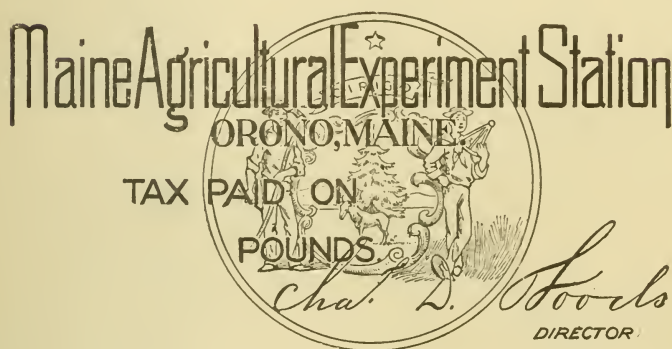
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# Maine Agricultural Experiment Station

BULLETIN No. 48.

JANUARY, 1899.

FEEDING STUFF INSPECTION.



Requests for the Bulletins should be addressed to the  
AGRICULTURAL EXPERIMENT STATION,  
Orono, Maine.

# MAINE

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## FEEDING STUFF INSPECTION.

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Samples of the feeding stuffs coming under the inspection law were drawn by the inspectors in November, 1898. The results of the chemical analyses follow. A discussion of the results of some of the analyses will be found on pages 12 to 15.

The law is working very satisfactorily indeed. There are practically no goods sold which are not properly guaranteed. That the law is keeping out low grade goods is evidenced by the following from a letter received a few weeks since: "You will please print tags as ordered for x x x x x Mill and send same by freight instead of express. We have discovered that the meal we anticipated shipping into Maine market was not of sufficient quality to meet requirements of your State. We have, therefore, concluded not to ship as anticipated. We will, later in the season, have a very nice grade of meal at x x x x Mill at which time we will place same in Maine market."

### FEEDS LOW IN PROTEIN.

Very few farmers can afford to buy feeds low in protein and high in carbohydrates at any price at which they have been or are likely to be offered. The farmer should grow all the coarse feeds that he needs. Oat and similar feeds are very much like corn stalks or oat straw in composition. Some of the feeds have cottonseed or other nitrogenous feeding stuffs added to them so that they carry more protein than straight oat feeds, but these mixtures are always more expensive sources of protein than are the gluts, cottonseed and linseed meals. One hundred pounds of an ordinary oat feed has from eight to eleven pounds protein. At seventy-five cents per hundred the protein costs from seven to nine cents a pound. One hundred pounds of a good gluten meal has from thirty-four to forty per cent of protein. At \$1.10 per hundred the protein costs about three cents a pound and it not only costs less than half as much but it is better digested. As a source of protein, it would be as good economy to pay \$60.00 a ton for high grade cottonseed meal as to pay \$15.00 a ton for the ordinary oat feed.

## MANUFACTURERS AND PLACE OF SAMPLING.

Station Number.	Manufacturer or Jobber.	Manufactured at	Sampled at
8278	American Cotton Oil Co .....	Huntsville, Ala....	Pittsfield ....
8282	American Cotton Oil Co .....	Huntsville, Ala....	Bowdoinham .....
8338	American Cotton Oil Co .....	Huntsville, Ala....	East Sumner.....
8279	American Cotton Oil Co .....	Pine Bluff, Ark....	Pittsfield .....
8280	American Cotton Oil Co .....	Little Rock, Ark....	Dexter.....
8283	American Cotton Oil Co .....	Brinkley, Ark .....	Newport .....
8281	American Cotton Oil Co .....	Memphis, Tenn ...	Belfast.....
8284	American Cotton Oil Co .....	Jackson, Tenn....	Belfast.....
8285	American Cotton Oil Co .....	Jackson, Tenn....	Rockland.....
8337	American Cotton Oil Co .....	Jackson, Tenn....	Dixfield.....
8339	American Cotton Oil Co .....	Nashville, Tenn....	East Sumner.....
8380	American Cotton Oil Co .....	Nashville, Tenn....	Monmouth .....
8389	American Cotton Oil Co .....	Nashville, Tenn....	Auburn.....
8349	American Cotton Oil Co .....	Nashville, Tenn....	Buxton Center. ...
8286	The Southern Cotton Oil Co....	Little Rock, Ark....	Bath .....
8289	J. E. Soper & Co. ....	.....	Newport .....
8381	J. E. Soper & Co. ....	.....	Augusta.....
8293	R. B. Brown Oil Co.....	.....	Dexter.....
8294	R. B. Brown Oil Co .....	.....	Corinna .....
8295	S. W. Thaxter & Co.....	Benham, Texas....	Bucksport.....
8296	S. W. Thaxter & Co.....	Benham, Texas....	Orrington .....
8297	S. W. Thaxter & Co.....	Benham, Texas....	Thomaston.....
8287	S. W. Thaxter & Co.....	Benham, Texas....	Winterport.....
8290	F. W. Brod�� & Co. ....	Memphis, Tenn....	Brunswick.....
8291	F. W. Brod�� & Co. ....	Memphis, Tenn....	Dexter.....
8292	F. W. Brod�� & Co. ....	Memphis, Tenn....	Foxcroft .....
8340	F. W. Brod�� & Co. ....	Memphis, Tenn....	W. Minot.....
8341	F. W. Brod�� & Co. ....	Memphis, Tenn....	Canton .....
8350	F. W. Brod�� & Co. ....	Memphis, Tenn....	Buxton Center.....
8364	F. W. Brod�� & Co. ....	Memphis, Tenn. ...	Bridgton .....
8382	F. W. Brod�� & Co. ....	Memphis, Tenn....	Monmouth.....
8390	F. W. Brod�� & Co. ....	Memphis, Tenn....	Lewiston.....
8402	F. W. Brod�� & Co. ....	Memphis, Tenn....	Houlton .....
8288	I. A. Barstow .....	.....	Bangor .....
8391	C. S. O. Co.....	.....	Farmington.....
8308	Chas. Pope Glucose Co.....	Chicago, Ill .....	Camden .....
8309	Chas. Pope Glucose Co.....	Chicago, Ill .....	Orrington .....
8310	Chas. Pope Glucose Co.....	Chicago, Ill .....	Brunswick.....
8345	Chas. Pope Glucose Co .....	Chicago, Ill .....	South Paris.....
8353	Chas. Pope Glucose Co.....	Chicago, Ill .....	Saco .....
8367	Chas. Pope Glucose Co .....	Chicago, Ill .....	Portland .....
8395	Chas. Pope Glucose Co.....	Chicago, Ill .....	Lewiston .....
8298	The Glucose Sugar Refining Co. ....	.....	Thomaston.....
8299	The Glucose Sugar Refining Co. ....	.....	Brunswick.....
8300	The Glucose Sugar Refining Co. ....	.....	Bucksport.....
8301	The Glucose Sugar Refining Co. ....	.....	Bangor .....
8302	The Glucose Sugar Refining Co. ....	.....	Belfast .....
8303	The Glucose Sugar Refining Co. ....	.....	Winterport .....

## ANALYSES OF SAMPLES.

Name of Feed.	Moisture— per cent.	PROTEIN.		FAT.		Station Number.
		Found— per cent.	Guaranteed per cent.	Found— per cent.	Guaranteed— per cent.	
Prime Cotton Seed Meal.....	7.55	42.25	43.00	11.48	9.00	8278
Prime Cotton Seed Meal.....	8.57	46.44	43.00	10.23	9.00	8282
Prime Cotton Seed Meal.....	8.36	43.94	43.00	9.77	9.00	8338
Prime Cotton Seed Meal... ..	8.10	45.38	43.00	10.43	9.00	8279
Prime Cotton Seed Meal.....	8.30	45.50	43.00	9.43	9.00	8280
Prime Cotton Seed Meal.....	6.67	47.13	43.00	12.46	9.00	8283
Prime Cotton Seed Meal.....	7.98	42.25	43.00	13.32	9.00	8281
Prime Cotton Seed Meal... ..	9.21	47.81	43.00	8.80	9.00	8284
Prime Cotton Seed Meal.....	8.90	47.00	43.00	10.78	9.00	8285
Prime Cotton Seed Meal... ..	9.73	46.94	43.00	10.33	9.00	8337
Prime Cotton Seed Meal.....	8.48	46.69	43.00	10.31	9.00	8339
Prime Cotton Seed Meal.....	7.42	46.75	43.00	11.26	9.00	8380
Prime Cotton Seed Meal.....	7.71	46.00	43.00	11.47	9.00	8389
Prime Cotton Seed Meal.....	8.59	45.82	43.00	10.51	9.00	8349
Prime Cotton Seed Meal... ..	8.46	46.82	43.00	9.76	9.00	8286
Cotton Seed Meal... ..	8.40	46.13	43.00	8.78	9.00	8289
Cotton Seed Meal... ..	6.27	44.75	43.00	14.72	9.00	8381
Prime Cotton Seed Meal... ..	9.32	47.88	43.00	8.34	9.00	8293
Prime Cotton Seed Meal.....	8.20	46.75	43.00	9.97	9.00	8294
Cotton Seed Meal.....	8.33	48.69	49.25	11.25	15.62	8295
Cotton Seed Meal.....	8.54	50.06	49.25	10.87	15.62	8296
Cotton Seed Meal.....	7.70	51.26	49.25	10.33	15.62	8297
Cotton Seed Meal.....	7.46	51.92	49.25	10.71	15.62	8297
Owl Brand Cotton Seed Meal ..	8.46	44.50	43.00	11.38	9.00	8290
Owl Brand Cotton Seed Meal ..	7.84	44.63	43.00	10.63	9.00	8291
Owl Brand Cotton Seed Meal ..	7.50	45.32	43.00	11.50	9.00	8292
Owl Brand Cotton Seed Meal ..	8.20	46.38	43.00	9.90	9.00	8340
Owl Brand Cotton Seed Meal ..	7.24	43.31	43.00	13.13	9.00	8341
Owl Brand Cotton Seed Meal ..	8.30	43.31	43.00	12.08	9.00	8350
Owl Brand Cotton Seed Meal ..	7.52	45.13	43.00	12.41	9.00	8364
Owl Brand Cotton Seed Meal ..	8.09	44.75	43.00	12.49	9.00	8382
Owl Brand Cotton Seed Meal ..	7.30	44.50	43.00	12.59	9.00	8390
Owl Brand Cotton Seed Meal ..	9.28	45.00	43.00	12.87	9.00	8402
Sea Island Cotton Seed Meal...	10.73	21.82	20.13	5.83	4.57	8288
Sea Island Cotton Seed Meal...	10.98	25.06	24.31	7.09	5.00	8391
Cream Gluten Meal . . . . .	9.79	30.94	37.12	3.88	3.20	8308
Cream Gluten Meal . . . . .	8.92	33.50	37.12	5.43	3.20	8309
Cream Gluten Meal . . . . .	9.48	34.88	37.12	2.24	3.20	8310
Cream Gluten Meal . . . . .	10.04	33.81	37.12	3.49	3.20	8345
Cream Gluten Meal . . . . .	8.48	35.69	37.12	2.73	3.20	8353
Cream Gluten Meal . . . . .	9.27	32.56	37.12	4.32	3.20	8367
Cream Gluten Meal . . . . .	9.35	31.19	37.12	3.13	3.20	8395
Chicago Gluten Meal.....	10.56	37.13	37.50	2.59	9.00	8298
Chicago Gluten Meal.....	11.02	39.63	37.50	1.94	9.00	8299
Chicago Gluten Meal.....	11.15	36.13	36.00	2.49	3.37	8300
Chicago Gluten Meal.....	10.76	38.82	38.00	2.79	2.00	8301
Chicago Gluten Meal.....	10.52	38.63	38.00	2.01	2.00	8302
Chicago Gluten Meal... ..	10.23	37.69	37.50	2.13	9.00	8303



## MANUFACTURERS—CONTINUED.

Station Number.	Manufacturer or Jobber.	Manufactured at	Sampled at
8304	The Glucose Sugar Refin. Co...	.....	Foxcroft.....
8342	The Glucose Sugar Refin. Co...	.....	Minot.....
8351	The Glucose Sugar Refin. Co...	.....	Buxton Center.....
8365	The Glucose Sugar Refin. Co...	.....	Bridgton.....
8375	The Glucose Sugar Refin. Co...	.....	Milltown.....
8376	The Glucose Sugar Refin. Co...	.....	Calais.....
8383	The Glucose Sugar Refin. Co...	.....	Waterville.....
8392	The Glucose Sugar Refin. Co...	.....	Lewiston.....
8305	National Starch Manf'g Co....	Indianapolis, Ind..	Foxcroft.....
8306	National Starch Manf'g Co....	Indianapolis, Ind..	Richmond.....
8343	National Starch Manf'g Co....	Indianapolis, Ind..	Canton.....
8393	National Starch Manf'g Co....	Indianapolis, Ind..	Lewiston.....
8394	National Starch Manf'g Co....	Des Moines, Iowa .	Farmington.....
8384	National Starch Manf'g Co....	Des Moines, Iowa .	Oakland.....
8344	National Starch Manf'g Co....	Des Moines, Iowa .	Dixfield.....
8307	National Starch Manf'g Co....	Des Moines, Iowa .	Dexter.....
8352	National Starch Manf'g Co....	Des Moines, Iowa .	Springvale.....
8358	National Starch Manf'g Co....	.....	North Yarmouth..
8366	National Starch Manf'g Co....	.....	Gorham.....
8311	Arthur R. Hopkins.....	Bangor.....	Bangor.....
8312	American Glucose Co.....	.....	Dexter.....
8327	S. W. Thaxter & Co.....	.....	Bath.....
8346	The Glucose Sugar Refin. Co...	.....	West Paris.....
8354	The Glucose Sugar Refin. Co...	.....	Berwick.....
8377	The Glucose Sugar Refin. Co...	.....	Calais.....
8396	The Glucose Sugar Refin. Co...	.....	Auburn.....
8328	Douglas & Co.....	.....	Brunswick.....
8329	The Cleveland Linseed Oil Co..	.....	Rockland.....
8330	The Cleveland Linseed Oil Co..	.....	Belfast.....
8313	The American Cereal Co.....	.....	Bucksport.....
8314	The American Cereal Co.....	.....	Brunswick.....
8316	The American Cereal Co.....	.....	Rockland.....
8317	The American Cereal Co.....	.....	Foxcroft.....
8347	The American Cereal Co.....	.....	West Paris.....
8357	The American Cereal Co.....	.....	Waterboro.....
8369	The American Cereal Co.....	.....	Fryeburg.....
8378	The American Cereal Co.....	.....	Eastport.....
8385	The American Cereal Co.....	.....	Skowhegan.....
8397	The American Cereal Co.....	.....	Auburn.....
8403	The American Cereal Co.....	.....	Houlton.....
8315	S. A. & J. H. True.....	.....	Brunswick.....
8318	The American Cereal Co.....	.....	Newport.....
8319	The American Cereal Co.....	.....	Brunswick.....
8320	The American Cereal Co.....	.....	Rockland.....
8321	The American Cereal Co.....	.....	Foxcroft.....
8348	The American Cereal Co.....	.....	West Paris.....
8356	The American Cereal Co.....	.....	Waterboro.....
8368	The American Cereal Co.....	.....	South Windham...



## ANALYSES—CONTINUED.

Name of Feed.	Moisture— per cent.	PROTEIN.		FAT.		Station number.
		Found— per cent.	Guaranteed— per cent.	Found— per cent.	Guaranteed— per cent.	
Chicago Gluten Meal.....	10.47	40.63	37.50	1.70	9.00	8304
Chicago Gluten Meal.....	11.58	36.88	36.00	1.98	3.37	8342
Chicago Gluten Meal.....	10.98	37.50	37.50	1.89	9.00	8351
Chicago Gluten Meal.....	11.28	39.69	38.00	1.92	2.00	8365
Chicago Gluten Meal.....	11.72	37.07	38.00	2.05	2.00	8375
Chicago Gluten Meal.....	11.37	36.88	37.50	2.20	9.00	8376
Chicago Gluten Meal.....	10.50	38.44	37.50	1.80	9.00	8383
Chicago Gluten Meal.....	10.52	37.50	37.50	2.61	9.00	8392
King Gluten Meal.....	9.44	34.06	32.00	4.28	16.00	8305
King Gluten Meal.....	6.69	37.32	32.00	5.06	16.00	8306
King Gluten Meal.....	9.34	34.69	32.00	4.30	16.00	8343
King Gluten Meal.....	7.91	35.75	32.00	6.87	16.00	8393
King Gluten Meal.....	7.04	32.44	32.00	15.57	16.00	8394
King Gluten Meal.....	6.04	33.13	32.00	15.54	16.00	8384
King Gluten Meal.....	7.87	31.50	34.25	13.24	14.65	8344
King Gluten Meal.....	6.34	32.82	32.00	15.41	16.00	8307
King Gluten Meal.....	8.28	32.81	32.00	16.40	16.00	8352
King Gluten Meal.....	8.20	33.25	32.00	16.30	16.00	8358
King Gluten Meal.....	7.07	32.06	32.00	15.90	16.00	8366
Imperial Gluten Meal.....	9.20	20.13	20.00	12.00	11.50	8311
Buffalo Gluten Feed.....	9.27	28.25	20.00	4.68	3.00	8312
Gluten Feed.....	10.26	22.63	*	5.93	*	8327
Rockford Diamond Gluten Feed.....	10.50	25.44	24.20	4.08	3.75	8346
Rockford Diamond Gluten Feed.....	9.44	25.44	24.20	5.44	3.75	8354
Rockford Diamond Gluten Feed.....	8.94	24.69	24.20	3.86	3.75	8377
Rockford Diamond Gluten Feed.....	7.34	25.75	24.20	4.43	3.75	8396
Old Process Oil Meal.....	9.00	26.63	36.94	6.45	6.58	8328
Cleveland Flax Meal.....	11.68	30.75	39.00	2.28	1.50	8329
Linseed Oil Meal.....	10.40	36.81	39.00	2.52	1.50	8330
Victor Corn and Oat Feed.....	9.52	9.56	9.46	4.31	3.92	8313
Victor Corn and Oat Feed.....	9.21	8.12	9.46	3.36	3.92	8314
Victor Corn and Oat Feed.....	9.31	9.94	9.46	4.44	3.92	8316
Victor Corn and Oat Feed.....	10.67	8.88	9.46	3.84	3.92	8317
Victor Corn and Oat Feed.....	10.20	9.06	9.46	3.18	3.92	8347
Victor Corn and Oat Feed.....	10.57	8.88	9.46	2.85	3.92	8357
Victor Corn and Oat Feed.....	8.90	9.69	9.46	4.92	3.92	8369
Victor Corn and Oat Feed.....	9.46	9.38	9.46	4.87	3.92	8378
Victor Corn and Oat Feed.....	8.54	8.75	9.46	3.53	3.92	8385
Victor Corn and Oat Feed.....	9.15	8.38	9.46	3.31	3.92	8397
Victor Corn and Oat Feed.....	11.25	9.02	9.46	3.57	3.92	8403
Corn and Oat Feed.....	9.80	8.38	9.63	3.44	4.23	8315
Quaker Oat Feed.....	8.94	9.44	12.03	2.57	3.49	8318
Quaker Oat Feed.....	8.36	10.31	12.03	3.61	3.49	8319
Quaker Oat Feed.....	8.32	11.13	12.03	3.57	3.49	8320
Quaker Oat Feed.....	7.48	7.44	12.03	2.98	3.49	8321
Quaker Oat Feed.....	8.27	10.31	12.03	3.29	3.49	8348
Quaker Oat Feed.....	9.51	10.38	12.03	2.87	3.49	8356
Quaker Oat Feed.....	7.95	10.88	12.03	3.79	3.49	8368

\* Not guaranteed.

## MANUFACTURERS—CONCLUDED.

Station number.	Manufacturer or Jobber.	Manufactured at	Sampled at
8399	The American Cereal Company	.....	Lewiston.....
8322	The American Cereal Company	.....	Brunswick.....
8323	The American Cereal Company	.. .. .	Richmond.....
8373	W. H. Haskell & Company.....	.....	Portland .....
8398	Andrew Cullen & Company ....	.....	Auburn .....
8400	.....	.....	Auburn .....
8324	The H-O Company .....	Buffalo .....	Bowdoinham .....
8372	The H-O Company .....	Buffalo .....	Freeport .....
8386	The H-O Company .... .	Buffalo .....	Bangor .....
8325	The H-O Company .....	Buffalo .....	Richmond.....
8371	The H-O Company .....	Buffalo .....	Freeport .....
8388	The H-O Company .....	Buffalo .....	Bangor .....
8326	The H-O Company .....	Buffalo .....	Richmond.....
8370	The H-O Company .....	Buffalo .....	Freeport.. ..
8387	The H-O Company .....	Buffalo .....	Bangor .....
8331	E. W. Blatchford & Company ..	.....	Brunswick.....
8332	The Bowker Fertilizer Co .....	.....	Belfast .....
8333	The Bowker Fertilizer Co .....	.....	Brunswick.....
8334	The Bowker Fertilizer Co .....	.....	Camden .. .
8355	The Bowker Fertilizer Co .....	.....	Buxton Center....
8374	The Bowker Fertilizer Co .....	.....	Gorham .....
8335	Bradley Fertilizer Company ...	.....	Belfast .....
8336	Bradley Fertilizer Company ...	.....	Belfast .....

## ANALYSES—CONCLUDED.

Name of Feed.	Moisture— per cent.	PROTEIN.		FAT.		Station number.
		Found— per cent.	Guaranteed— per cent.	Found— per cent.	Guaranteed— per cent.	
Quaker Oat Feed .....	7.77	10.75	12.03	3.97	3.49	8399
American Poultry Food .....	9.82	14.19	*	5.91	*	8322
Corn, Oat and Barley Feed ..	9.42	12.75	11.26	5.39	4.15	8323
Haskell's Oat Feed... ..	9.13	11.31	9.62	7.91	7.66	8373
Crescent Oat Feed.....	7.42	8.63	*	3.72	*	8398
Monarch Oat Feed.....	8.78	11.19	10.25	8.79	7.47	8400
The H-O Co.'s Poultry Feed....	10.26	17.81	16.80	5.43	7.00	8324
The H-O Co.'s Poultry Feed....	9.43	18.00	16.80	5.76	7.00	8372
The H-O Co.'s Poultry Feed....	9.50	18.31	16.80	5.92	7.00	8386
The H-O Co.'s Stand.Dairy Feed	8.19	20.38	18.75	5.42	7.25	8325
The H-O Co.'s Stand.Dairy Feed	8.30	20.94	18.75	5.39	7.25	8371
The H-O Co.'s Stand.Dairy Feed	8.52	17.06	18.75	4.24	7.25	8388
The H-O Co.'s Horse Feed .....	9.80	11.94	12.30	3.81	4.90	8326
The H-O Co.'s Horse Feed.....	10.91	11.81	12.30	4.51	4.90	8370
The H-O Co.'s Horse Feed.....	9.06	11.69	12.30	4.75	4.90	8387
Blatchford's Calf Meal.....	8.36	33.44	*	5.23	*	8331
Bowker's Animal Meal .....	5.64	41.07	30.00	14.05	5.00	8332
Bowker's Animal Meal .....	5.67	44.31	30.00	12.05	5.00	8333
Bowker's Animal Meal .....	6.11	44.94	30.00	12.94	5.00	8334
Bowker's Animal Meal .....	5.62	41.75	30.00	13.40	5.00	8355
Bowker's Animal Meal .....	6.04	40.50	30.00	12.32	5.00	8374
Bradley's Superior Meat Meal.	6.06	43.56	40.00	15.95	15.00	8335
Old Fashioned Beef Scraps.....	7.93	49.13	40.00	19.60	10.00	8336

\* Not guaranteed.

## SUMMARY OF ANALYSES.

	Number of analyses.		PROTEIN.		FAT.	
			Found— per cent.	Guaranteed— per cent.	Found— per cent.	Guaranteed— per cent.
American Cotton Oil Co.'s Prime Cotton Seed Meal.	14	Highest Lowest Average	47.81 42.25 45.71	..... 43.00 .....	13.32 8.80 10.75	9.00.
Southern Cotton Oil Co.'s Prime Cotton Seed Meal.	1	.....	46.82	43.00	9.76	9.00.
J. E. Soper and Co.'s Cotton Seed Meal.	2	Highest Lowest Average	46.13 44.75 45.44	..... 43.00 .....	14.72 8.78 11.75	9.00.
R. B. Brown Oil Co.'s Prime Cotton Seed Meal.	2	Highest Lowest Average	47.88 46.75 47.32	..... 43.00 .....	9.97 8.34 9.16	9.00.
S. W. Thaxter & Co.' Cotton Seed Meal.	4	Highest Lowest Average	51.92 48.69 50.48	..... 49.25 .....	11.25 10.33 10.79	15.62
F. W. Brod�� & Co.'s Owl Brand Cotton Seed Meal.	10	Highest Lowest Average	46.38 43.31 44.68	..... 43.00 .....	13.13 9.90 11.90	9.00
Sea Island Cotton Seed Meal.	2	Highest Lowest Average	25.06 21.82 23.44	..... * .....	7.09 5.83 6.46	*
Charles Pope Glucose Co.'s Cream Gluten Meal.	7	Highest Lowest Average	35.69 30.94 33.22	..... 37.12 .....	5.43 2.24 3.53	3.20.
The Glucose Sugar Refin'g Co.'s Chicago Gluten Meal.	14	Highest Lowest Average	40.63 36.13 38.01	38.00 36.00 .....	2.79 1.70 2.15	3.37 2.00
National Starch M'f'g Co.'s King Gluten Meal.	11	Highest Lowest Average	37.32 31.50 33.62	..... 32.00 .....	16.40 4.28 11.72	16.00
Arthur R. Hopkins's Imperial Gluten Meal.	1	.....	20.13	20.00	12.00	11.50.
American Glucose Co.'s Buffalo Gluten Feed.	1	.....	28.25	29.00	4.68	3.00.
S. W. Thaxter & Co.'s Gluten Feed.	1	.....	22.63	.....	5.93	.....
The Glucose Sugar Refin'g Co.'s Rockford Diamond Glut.Feed.	4	Highest Lowest Average	25.75 24.69 25.33	..... 24.20 .....	4.43 3.44 3.95	3.75.
Douglas & Co.'s Old Process Oil Meal.	1	.....	26.63	36.94	6.45	6.58.
Cleveland Linseed Oil Co.'s Cleveland Flax Meal.	1	.....	39.75	39.00	2.28	1.50.
Cleveland Linseed Oil Co.'s Linseed Oil Meal.	1	.....	36.81	39.00	2.52	1.50

\* For guarantees see page 5.

## SUMMARY OF ANALYSES--CONCLUDED.

	Number of analyses.		PROTEIN.		FAT.	
			Found— per cent.	Guaranteed— per cent.	Found— per cent.	Guaranteed— per cent.
The American Cereal Co.'s Victor Corn and Oat Feed.	11	Highest Lowest Average	9.94 8.12 9.06	..... 9.46 .....	4.92 2.85 3.83	3.92
S. A. & J. H. True Co.'s Corn and Oat Feed.	1	.....	8.38	9.63	3.44	4.23
The American Cereal Co.'s Quaker Oat Feed.	9	Highest Lowest Average	11.13 7.44 8.96	..... 12.03 .....	3.97 2.57 2.96	3.49
The American Cereal Co.'s American Poultry Food.	1	.....	14.19	.....	5.91	.....
The American Cereal Co.'s Corn, Oat and Barley Feed.	1	.....	12.75	11.26	5.39	4.15
W. H. Haskell & Co.'s Haskell's Oat Feed	1	.....	11.31	9.62	7.91	7.66
Andrew Cullen & Co.'s Crescent Oat Feed.	1	.....	8.63	.....	3.72	.....
Monarch Oat Feed.	1	.....	11.19	10.25	8.79	7.47
The H-O Co.'s Poultry Feed.	3	Highest Lowest Average	18.31 17.81 18.04	..... 16.80 .....	5.92 5.43 5.70	7.00
The H-O Co.'s Standard Dairy Feed.	3	Highest Lowest Average	20.94 17.06 19.46	..... 18.75 .....	5.42 4.24 5.02	7.25
The H-O Co.'s Horse Feed.	3	Highest Lowest Average	11.94 11.69 11.81	..... 12.30 .....	4.75 3.81 4.36	4.90
E. W. Blatchford's Calf Meal.	1	.....	33.44	.....	5.23	.....
Bowker Fertilizer Co.'s Bowker's Animal Meal.	5	Highest Lowest Average	44.94 40.50 42.51	..... 30.00 .....	14.05 12.05 12.95	5.00
Bradley Fertilizer Co.'s Superior Meat Meal.	1	.....	43.56	40.00	15.95	15.00
Bradley Fertilizer Co.'s Old Fashioned Beef Scraps.	1	.....	49.13	40.00	19.60	10.00

J. M. BARTLETT, *Chemist.*

O. W. KNIGHT, } *Assistant*  
A. J. PATTEN, } *Chemists.*



## COTTON SEED MEAL.

Pure cotton seed meal is made by grinding the seed after the white down, which remains upon the seed as it comes from the cotton gin, and the hard hulls have been removed. Decorticated cotton seed meal thus prepared carries from forty to fifty-three per cent of protein. From the ease with which hulls may be ground with the cotton seed, this class of goods offers peculiar opportunity to dishonest manufacturers and dealers. When the feeding stuff law went into effect in the fall of 1897 the State was filled with inferior goods carrying from twenty-two to thirty per cent of protein. In the spring of 1898 the inspectors reported a few lots of these goods. In November 1898 only two lots of low grade cotton seed meal were found by the inspectors, and these samples were guaranteed in accordance with their low grade. Occasionally the Station has had sent to it by correspondents samples of suspected meal, but analyses have shown them to be up to guarantee.\* Not all dark colored meal is adulterated and not all bright yellow meal is free from adulteration. The following statement made in bulletin 44 apparently represents the status of low grade cotton seed meal at present: "Goods of this type were very abundant in this State in 1897 but there are almost none of them to be found at present. The inspection law has driven them to other states."

As will be seen from the analyses the cotton seed meals agree quite closely with the guaranteed analyses.

## GLUTEN MEALS AND FEEDS.

Gluten meals and gluten feeds are by-products left in the manufacture of starch and glucose from Indian corn. Corn consists largely of starch. The waste product from the manufacture of starch or sugar is relatively much richer in oil and protein than corn. Many factories are removing part of the corn oil from the waste, so that some gluten meals carry but little oil. This reduction in fat is an advantage, as feeding corn oil to dairy animals seems to have a tendency to make the butter soft. No by-products used for feeding differ more from each other than do these starch and sugar wastes. All manufacturers

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\* After this Bulletin was in press one low grade *unguaranteed* sample has been received.



apparently do not recognize that the composition of these offals change greatly, and some of them have based their guarantees upon old analyses.

Cream gluten meal is not up to the guarantee in protein. It is guaranteed to carry thirty-seven per cent, but from the samples drawn the purchaser can not expect more than thirty-three per cent of protein on the average, and one sample ran as low as thirty-one per cent of protein. The attention of the handlers of this feed has been called to these discrepancies between guarantee and analysis and they will probably be corrected on future shipments.

Fourteen samples of Chicago gluten meal were collected by the inspectors. These samples represent both old and new goods. The old goods were guaranteed too high in fat. The present guarantee, thirty-eight per cent protein and two per cent fat, fairly well represents the goods on the market. The protein found in the samples examined, agrees as closely as can be expected with the guarantees. The State agents seem to be anxious that their guarantees shall represent the goods as sold.

King gluten meal as sold in Maine comes from two mills, the output of which differ greatly in composition. The goods made at the Des Moines mill are very close with the guarantee, thirty-two per cent protein and sixteen per cent fat; the goods from the Indianapolis mills are higher in protein than the guarantee and are correspondingly low in fat. The Indianapolis goods carry about thirty-four per cent protein and four per cent of fat. The attention of the dealers has been called to this and the goods will be correctly branded in the near future.

#### GLUTEN FEEDS.

But little gluten feed is offered in the State. That found agreed in composition with the guarantee. At Bath a small amount of gluten feed was found which did not carry any guarantee.

#### LINSEED MEAL.

Only three samples of linseed meal were found by the inspectors. Its high cost, relative to cotton seed meal has apparently crowded it out of the market. The guarantee of Douglass & Company's oil meal was based upon an analysis of a sample sent to the Station months before by the wholesaler, who writes as

follows: "When you analyzed our oil meal we had a large quantity on hand, and we tagged as you directed. It is so high now that very little is sold and we have had a few lots that we have sold and we supposed was of same quality. We have not at present a single sack in our store."

#### OAT FEEDS.

A number of samples of different oat feeds have been examined. For the most part guarantees are based upon single analyses of the feeds and the goods usually are not quite as good as the sample upon which the guarantee rests. With the exception of the American Cereal Company's Quaker Oat Feed none of these materials are much below and some run above the guarantee.

#### BLATCHFORD'S CALF MEAL.

This is a manufactured food only one lot of which was found by our inspectors. This was not guaranteed but carried 33.44% protein and 5.23% of fat. In some advertising matter connected with Blatchford's calf meal it is claimed that 12.8 pounds of it has three and one-half pounds of protein which is about twenty-seven and one-half per cent. A sample of these goods sent by a dealer to the Station in September analyzed as follows:

Water, 7.70%; ash, 5.46%; protein, 25.63%; crude fiber, 5.28; starch, 18.24%; undetermined carbohydrates, 32.13%; fat, 5.56%. It will be observed that the goods as evidenced by the official sample and this lot sent to the Station are very uneven in composition;—one sample carrying about 26% and the other about 33% of protein. A large part of the ash is common salt.

These goods were sent to an expert on food mixtures and adulterations at the Connecticut Experiment Station who reports as follows: "I have examined Blatchford's calf meal under the microscope and find it contains linseed meal, some product from the wheat kernel, some product from the bean kernel and a little fenugreek. The linseed meal appears to be the chief constituent. The wheat product is bran, middlings or some similar product consisting of starchy matter mixed with more or less of the seed coats. Bean bran was present in considerable amount and more or less of the starchy matter."

In a letter just at hand from Mr. J. W. Barwell, the proprietor of these goods, he says: "Regarding the ingredients, I cannot give you the exact constituents of it, but I may say that it is composed mostly of locust bean meal with leguminous seeds such as lentils, etc., and oleaginous seeds such as flax-seed, fenu-greek and annis seed, all cleaned, hulled and ground together and thoroughly well cooked. There is no cheap mill food and no low grade feed enters into this composition. I am prepared to go into any court in the United States and make an affidavit that there is no farmer in the United States that can compound Blatchford's calf meal for less than \$3.50 per hundred."

Locust bean meal which Mr. Barwell claims to be the chief constituent of Blatchford's calf meal is practically not used in this country as a cattle feed. The average of ten English and German analyses show it to carry:—water, 14.96% ; ash, 2.53% ; protein, 5.86% ; crude fiber, 6.39% ; nitrogen-free-extract, 68.98% ; fat, 1.28%.

It is evident from the chemical analysis that locust bean meal cannot be the chief constituent of Blatchford's calf meal, but that the microscopist is correct that linseed meal is the chief constituent. Locust bean meal has only six per cent of protein and in order to make a mixture carrying from twenty-six to thirty-three per cent of protein, it would be necessary to add large quantities of goods like linseed meal rich in protein. As seen from the analysis Blatchford's calf meal has a feeding value somewhat inferior to old process linseed meal. Whatever it may cost to manufacture, no man who has sufficient intelligence to mix feeds can afford to buy it at anything like the price asked.

#### CHIEF REQUIREMENTS OF THE LAW.

The points of the law of most interest both to the dealer and consumer are concisely stated below.

*Kinds of Feed coming within the Law.* The law applies to all feeding stuffs *except* hays and straws; whole seeds and meals of wheat, rye, barley, oats, Indian corn, buckwheat and broom corn; brans and middlings. The principal feeds coming under the provisions of the law are linseed meals, cotton seed meals, pea meals, cocoanut meals, gluten meals, gluten feeds, maize feeds, starch feeds, sugar feeds, dried brewer's grains, malt sprouts, hominy feeds, cerealine feeds, rice meals, oat feeds,

corn and oat chops, ground beef or fish scraps, mixed feeds, and all other materials of similar nature.

*Inspection Tax and Tag.* To meet the expenses of inspection, a tax of ten cents per ton must be paid to the Director of the Maine Agricultural Experiment Station. On receipt of the inspection tax, the Director of the Station is required to furnish a tag stating that all charges have been paid. This tag must be affixed to the package before it is offered for sale.

*The Brand.* Each package of feeding stuff included within the law shall have affixed the inspection tax tag and shall also bear, conspicuously printed, the following statements:

The number of net pounds contained in the package.

The name or trade mark under which it is sold.

The name of the manufacturer or shipper.

The place of manufacture.

The place of business of manufacturer or shipper.

The percentage of crude protein.

The percentage of crude fat.

These statements may be printed directly on the bag, on a tag attached to the package, or on the back of the inspection tax tag furnished by the Director of the Station.

A copy of the statement of brand must be filed with the Director of the Station. The goods must carry the inspection tax tag and the brand before they can be legally offered for sale in the State. It will not answer to affix tags at the time the goods are sold.

#### FREE ANALYSIS OF FEEDING STUFFS.

The Station officers take pains to obtain for analysis samples of all feeding stuffs coming under the law, but the co-operation of consumers is essential for the full and timely protection of their interests. Whenever any one believes that the law is being evaded in any way, they are requested to notify the Director of the Station.

The Station will promptly analyze, free of charge, samples of feeding stuffs *taken in accordance with directions furnished by the Station*, and report the results to the interested parties. Blanks containing full directions for drawing and forwarding samples will be sent on application.

CHAS. D. WOODS, *Director.*